Species.	Date when found carrying ova.	General Remarks.
Stenorhynchus phalangium.	Aug. 18, 1852. May 30, 1853.	In the first, very few ova were left in the purse; in those caught in May 1853, the spawn was so plentiful that the abdomen was thrown back on a plane with the carapace.
Stenorhynchus tenuirostris.	May 30, 1853.	In spawn: ova of a light orange-brown colour: the abdomen in consequence of the large quantity of ova was thrown back on a level with the carapace. This species when alive is of a lovely pink or puce colour. Weedy bottom, three fathoms.
Hippolyte Whitei (mihi)*.	June 14, 1853.	Several in spawn: the ova are palish yellow, but much hidden by the scales of the abdomen. The prevailing colour of this species is meadow green, with (whilst alive) a white band running down the centre of the back. In each there were two teeth on the under edge of the rostrum. Weedy bottom and stones, four to six fathoms.
Hippolyte Thompsoni .	May 4, 1853.	Dredged some in spawn: the ova are of a dirty green. Rocky and weedy bottom, three to five fathoms.
Palæmon Leachii	June 8, 1853.	This is now in spawn; some few have deposited their ova, which are of a brownish drab colour.
Palæmon serratus......	June 1853.	All in spawn; it will be deposited before the middle of July.
Mysis vulgaris	June 14, 1853.	In spawn: ova of a brownish colour.
Mysis Griffithsiæ	June 14, 1853.	In spawn.

Experimental Researches on Vegetation. By M. Georges Ville.

After stating that it has often been asked if air, and especially azote, contributes to the nutrition of plants; and, as regards the latter, that this question has always been answered negatively, the author remarks it is however known that plants do not draw all their azote from the soil, the crops produced every year in manured land giving a greater proportion of azote than is contained in the soil itself. The question which he has proposed to himself for so-

* This new and beautiful species of *Hippolyte* I have named after Mr. Adam White of the British Museum. I have drawn up a specific description for the 'Annals' for August.—W. T.

lution is, whence then comes the excess of azote which the crops contain, and in a more general manner, the azote of plants, which the soil has not furnished? He divides his inquiry into the three following parts:—

First. Inquiry into and determination of the proportion of the ammonia contained in the air of the atmosphere.

Second. Is the azote of the air absorbed by plants?

Third. Influence on vegetation of ammonia added to the air.

1. The author remarks that since the observation of M. Théodore de Saussure, that the air is mixed with ammoniacal vapours, three attempts have been made to determine the proportion of ammonia in the air: a million of kilogrammes of the air, according to M. Gräyer, contain 0·333 kil. $N^2 H^3$; according to Mr. Kemp 3·880 kil.; according to M. Frésenius, of the air of the day, 0·098 kil., and of night air, 0·169 kil. He states that he has shown the cause of these discrepancies, and proved that the quantity of ammonia contained in the air is 22·417 grms. for a million of kilogrammes of the air; and that the quantity oscillates between 17·14 grms. and 29·43 grms.

2. The author states that though the azote of the air is absorbed by plants, the ammonia of the air contributes nothing to this absorption. Not that ammonia is not an auxiliary of vegetation, but the air contains scarcely 0·0000000224, and in this proportion its effects are inappreciable. These conclusions are founded upon a great number of experiments in which the plants lived at the expense of the air without deriving any thing from the soil. For the present he confines himself to laying down these two conclusions:—1. The azote of the air is absorbed by plants, by the cereals, as by all others. 2. The ammonia of the atmosphere performs no appreciable part in the life of plants, when vegetation takes place in a limited atmosphere. After describing the apparatus by means of which he carried on his experiments on the vegetation of plants placed in a soil deprived of organic matter, and the manner in which the experiments were conducted, he adduces the results of these experiments in proof of the above conclusions.

3. With reference to the influence of ammonia on vegetation, the author states that, if ammonia be added to the air, vegetation becomes remarkably active. In the proportion of 4 ten-thousandths the influence of this gas shows itself at the end of eight or ten days, and from this time it manifests itself with a continually increasing intensity. The leaves, which at first were of a pale-green, assume a deeper and deeper tint, and for a time become almost black; their petals are long and upright, and their surface wide and shining. In short, when vegetation has arrived at its proper period the crop is found far beyond that of the same plants grown in pure air; and, weight for weight, they contain twice as much azote. Besides these general effects there are others which are more variable, which depend upon particular conditions, but which are equally worthy of interest. In fact, by means of ammonia we can not only stimulate

vegetation, but, further, we can modify its course, delay the action of certain functions, or enlarge the development and the modification of certain organs. The author further remarks, that if its use be ill-directed, it may cause accidents. Those which have occurred in the course of his experiments appear to him to throw an unexpected light upon the mechanism of the nutrition of plants. They have at least taught him at the expense of what care ammonia may become an auxiliary of vegetation. These experiments, which were made under the same conditions as those upon the absorption of azote, are then described, and their numerical results given.

To the conclusions already stated, the author adds that there are periods to be selected for the employment of ammonia, during which this gas produces different effects. If we commence its use when several months intervene before the flowering season of the plants, it produces no disturbance; they follow the ordinary course of their vegetation. If its use be commenced at the time of flowering, this function is stopped or delayed. The plant covers itself with leaves, and if the flowering takes place all the flowers are barren.—*Proc. Roy. Soc.* May 26, 1853.

On the Priority of the Discovery of the Mode of Action of the Pholades in the Perforation of Stones. By M. Vrolik.

The question of the perforation of rocks by Pholades, which has been brought before the Academy of Sciences, has given rise to a claim of priority put forward by Mr. Robertson, and since contested by M. Caillaud.

The Academy will not be displeased to learn that Professor Vrolik of Amsterdam has just shown that the fact of mechanical perforation by the valves, and as the result of the simple movement of the Pholades, without the assistance of any acid, was described more than seventy years ago by Léendert Bomme, a Director of the Commercial Company of Middelbourg. His memoir, in which he enters into many details respecting the œconomy of these animals, which in 1759 and 1760 threatened the destruction of the dykes of the island of Walcheren, was published in the Transactions of the Scientific Society of Flessingen.—*Comptes Rendus,* May 2, 1853.

On Sun Columns observed at Sandwick Manse, Orkney. By the Rev. C. Clouston.

May 18th. About 8 P.M. observed a mock sun having prismatic colours, on the N. side of the sun, with rays on the off side converging to a point. In about 15 minutes another of the same description, but fainter, appeared on the S. side of the sun, and a faint halo appeared over the sun, as if joining there. At sunset there was a faint sun pillar.

21st. At sunset another sun pillar seen.

23rd. A sun pillar seen tonight at 8 P.M., about 45 minutes before sunset, at first being a pale whitish beam, shooting up through the